2016

Influence of Parents Education and Income on an Individuals Decision to Become Self-Employed

Leonsdale A. Griffith
Skidmore College

Influence of Parents Education and Income on an Individuals Decision to Become Self-employed

By

Leonsdale A. Griffith

A Thesis Submitted to

Department of Economics

Skidmore College

In Partial Fulfillment of the Requirement for the B.A Degree

Thesis Advisor: Qi Ge

May 3, 2016

Influence of Parents Education and Income on an Individuals Decision to Become Self-employed

Leonsdale A. Griffith

May 2016

Abstract: This paper analyzes the variables that impact an individual's decision to become self-employed, and primarily focuses on parent's education and parent's income. The research uses PSID data (from 2012), on the head of the household's education, their parent's income, their parent's social status, their parent's education, and parent's industry**.** The variables are chosen based on the assumptions of the liquidity constraint theory (Evans, D. S., & Jovanovic, B. 1989), which states that individuals with more access to capital are likely to become self-employed. In addition, my research also analyses the composition of the sample to determine if PSID allows for a complete study of this topic. It also controls for region and parents industry in the probit model to better measure the impact the variables. When there is no control for region, and industry, the study finds that only parent's income has a positive and significant impact on the probability of deciding to become self-employed. The results are slightly different when the model controls for the industries and regions. Although parent's income continues to be positive and significant, in both regressions, father's educational attainment (those who attended high school) only became significant when the model controls for industry and region.

Keywords: self-employed, education, parent's income, PSID, social status, industries

1 INTRODUCTION

Self-employment (entrepreneurship) plays an important role in the development of the U.S economy. Entrepreneurs have started enterprises that have significantly contributed to the growth of the U.S economy and improved the lives of many U.S. citizens. For example, Bill Gates, Michael S. Dell, Steve jobs, and Mark Zuckerberg, created some of the most successful and influential companies in the world. These companies are not only successful because they consistently generate billions of dollars in yearly revenue, but also because they have contributed to the development of millions of people. They also contribute significantly to the growth and development of the U.S economy in such a way, that if they were to fail, then the entire economy will likely experience a recession. These four entrepreneurs may have never achieved such success if they had not decided to become self-employed (SE). They are living proofs of why regular employment is not always the right path to take and if those four can achieve such a feat, then imagine what millions of people may be able to accomplish. Fortunately, Bill Gates, Michael Dell, Steve jobs, and Mark Zuckerberg are not alone, and there are million others like them. In fact, the bureau of labor statistics reported that there were 14.4 million Americans who were self-employed in 2014. It also reported that 9.2 million of those individuals' owned businesses that were unincorporated, and 5.2 million owned businesses that were incorporated (Fox, 2015). According to Forbes, there are about 28 million small businesses in the U.S and 22 million of those 28 million are categorized as businesses that are owned by someone who is self-employed. In addition, about 50% of the population works for a small business indicating that there are numerous entrepreneurs who are very cable of creating and managing a successful business. It is clear that self-employment is a common career path and extremely beneficial to the development of the U.S. Yet it is not as clear as to why these people decides to become SE,

especially considering that it is a risky career path, when it is compared to regular (wage and salary) employment. In fact, the responsibilities of being SE can be far greater than the responsibilities of regular employment. Individuals who first start out, have to assume most, if not all of the liabilities of the company. They are often required to put their own financial wellbeing at risk, either by taking on significant loans or by using their own savings. Also, establishing a successful company requires a significant amount of hard work, dedication and sacrifice of one's free time. Perhaps, those individuals are willing to accept the risk of being SE, because the reward of becoming the next Bill Gates or Mark Zuckerberg is worth the sacrifice. Maybe, some choose to become SE because they cannot picture themselves, devoting 8 hours a day to a business that they don't own, or maybe they are just following in the footsteps of the parents who are also SE. This study attempts to address those question, and identify important factors that influences someone's decision to pursue self-employment.

The more relevant literatures helps to understand the important factors (education and income) that impacts an individual's decision to become SE, and how to conduct the study. Eliasson et al. (2013) focused on how region (urban & rural) impacts certain factors of becoming SE. He analyzed multiple variables that contributes to the decision, such as education, labor market status, plant characteristics, self-employment experience, financial resources, family links and regional attributes. He finds that region (urban and rural) does not have a significant impact, and affect the variables in similar was. However this study was done in Sweden, and region may have a greater influence in larger countries such as the U.S. Caliendo et al. (2014) sought to determine the role that personality plays in the entry and exit of self-employment, by analyzing traits such as risk tolerance, extraversion, openness to experience, and locus of control. Their study finds that personality do have a large influence, because openness to experience, risk

tolerance, and extraversion (positively or negatively) impacts entry into self-employment. Thus implying that there is more to the decision besides factors such as income or education. Taylor (1996) conducted a study that finds that individual's preference and attitude are important factors to consider when trying to understand why someone becomes SE. The freedom, initiative and type of work that comes with self-employment are the main reasons for becoming SE. Taylor (1996) also discovers that there is a positive correlation between family support and self-employment, which implies that parents may have an influence. Dunn, T., & Holtz-Eakin, D. (2000) discovered that parent's self-employment status has a significant role in influencing their children's decision. A large part of that influence is beyond the financial capital of the parents. In fact, the data showed that the individual's own financial capital influence their decision to become SE more than the financial capital of their parents. However, it does discover that the parent's financial assets and income demonstrates a positive, but small impact. My study is similar to those literatures, because it focuses on factors that influences an individual's decision to become SE. However, it uses more recent data (year 2012) from the PSID database, and focuses specifically on parent's education, parent's income and social status. It also analyzes the variables in the PSID (Panel Study on Income Dynamics) database, to determine if it allows for a valid empirical analysis of this research.

The study will, therefore, be segmented into four main sections. The second section will discuss the findings and methodology of the relevant literatures. The third section will analyze the data of the study, to provide a detailed explanation of the sample composition. It will also include a detailed explanation of the key variables, procedures, and the theory that allowed for the construction of the probit models. Those key variables are the education of the head, the parent's education, the parent's income and the parent's social status. Finally, the fourth section

will include a discussion of the results, which is that the father's education and parent's income have a significant positive impact on an individual's choice to become self-employed, when region and industry are controlled for. The fourth section will also include the implications of using PSID, by commenting on its limitation. It will also include a proposal for future policy and the concluding portions of the paper.

2 LITERATURE REVIEW

a. General Literatures

Many individuals have the option to choose what career they want to pursue, and as previously explained, many chooses self-employment despite the difficulties that they may encounter as an entrepreneur. There aren't many literatures that attempts to analyze the factors that influences those individuals' decisions, but there are many literatures that generally addresses self-employment. Although, the following literatures are not as relevant to this research as the later ones, they do provide general, but valuable information on self-employment.

Lazear and Moore (1984), conducted a study that discusses the relationship between human capital and the earnings of a SE individual. It focuses on the relationship between the age-earning profile and the need for employers to provide incentive for their employees to work harder. More specifically, it attempts to show that the steepness of the age-earnings profile is represents by the incentive to work harder rather than the productivity of the workers. In essence, this study somewhat contradicts the understanding that the structure of the age-earnings profile is due to returns from investing in human capital (on-the-job training).

To conduct the study, Lazear and Moore (1984) uses the age-earnings profile of a SE individual as a benchmark. According to the study, SE workers are a valid benchmark, because

they do not face the principal agent problem, and do not necessarily need a steep earning profile to be productive. Thus, their flat earnings profile likely represents the true earnings of a worker from investing in human capital and becoming more productive.

Lazer and Moore (1984) also use a linear equation to estimate what portion of the age earnings profile is based on incentive. The findings are based on questionable assumptions. Some of those assumptions are that workers' risk or time preference varies across occupations and that the opportunity for firms to use steeper age earning profiles must be the same no matter the occupation.

Unfortunately, these assumptions are not representative of the real world, because not every firm faces the same opportunity cost. A large firm would find it relatively inexpensive to increase their salary budget by 10 million, whereas a very small firm would not have the funding to accomplish this. My research is not based on analyzing the structure of the age earning profile nor is it about determining what portion of it is incentive based, because it doesn't explain what factors influences the decision to become SE. However, the findings of Lazear and Moore (1984) does aid my research by providing a greater understanding of what motivates the SE. It implies that compensation is an extremely important factor for salary/wage workers, but it may not be as important for those who are SE. Other factors, such as job satisfaction and independence, may be more important for those who decides to become SE.

Kawaguchi (2003) conducted a research that builds upon the previous findings of Lazear and Moore (1984), but also contributes to the previous study by providing more analysis on the difference between the earnings and human capital of both types of workers. His study, much like the previous, is based on the human capital theory, which attributes the variances in people's earnings to the amount invested in human capital. Kawaguchi's (2003) research is also based on

questionable assumptions, which are that the earnings of a SE individual vary significantly more than the earnings of a salary worker. Also that the earning of a SE individual accurately represents the amount of investment in human capital. The variation of earnings is largely due to the composition of the sample than the type of worker. It is entirely possible that a sample of the earnings of both workers, will show more variation for salary workers rather than SE workers. None-the-less, let us assume that his assumptions are correct and that the variations in earnings for a SE worker is 2.6 times larger than it is for a wage worker. If we assume that the variation is a measurement of risk and that individuals are able to rationally assess the risk of deciding to become SE, then those who do decide to become SE will likely have access to things that reduces that risks. Those risk reduction factors could very well be the financial assets, such as the income of the individual or their parents. The assumptions would thus support the use of the liquidity constraint theory as the foundation of this research. The theory states that individuals with access to sufficient assets (wealth, capital) are more likely to become entrepreneurs, which also implies that those who have less access to assets are less likely to become SE.

The other assumption, which states that wage is an accurate representation of human capital, is important because it explains the flatness of a SE individual earning profile. In fact, Kawaguchi (2003) provides evidence that the flatness of the earnings profile is due to the fact that SE individuals invest less in human capital while on the job. He proposes that this lack of investment in human capital occurs because those who are SE begin their career with high human capital. Thus, if they were to take time off to gain more human capital, they face high opportunity cost.

Furthermore, the study offers the explanation that people with higher human capital (education), are likely to become SE. It is because self-employment is risky, and the higher

return from human capital makes up for the risk. Therefore, when I conduct my study with recent data, I may find a similar result, in which the SE individuals will be sufficiently or highly educated. Additionally, the study also discovers that individuals with parents that are successfully SE, will likely pursue self-employment in the future. A finding that is reiterated in the other studies by Eliasson et al. (2013), and Dunn et al. (2000).

The previous literatures loosely addresses the importance that education have on the success of the SE, but Robinson and Sexton (1994) provide a more indebt analysis of the impact of education. They were motivated to conduct this study because they wanted to determine if education is necessary for the success of an entrepreneurs, if SE individuals are more or less educated than the general population, if more educated individuals tend to choose self-employment as opposed to the less educated. All of those questions are addressed in four hypotheses, and the first three are relevant to this study. The first, is that those who are SE have more years of formal education than others. The second, is that the number of formal education will increase the probability of becoming SE. The third hypothesis, states that formal education and the earnings (success) of a SE individual, will be significantly positive.

To conduct an empirical analysis with the sample, the study used three functions, one of which is the wage/salary earning function. The other two are the SE earnings function, and the self-employment decision function (probit model). These functions were not perfect and lacked some important variables, so even though all of the hypothesis were proven correct, they should be interpreted with caution. The problem with the result for the first hypothesis is due to the fact that it is very specific to the sample and may not be consistent in other studies. Even if the mean years of education for a SE person is higher 14.57 than the mean for the wage worker (13.58), it could be very different in other studies, where the sample includes SE individuals that are less

educated than the wage workers. In addition, the authors did not include control variables for region nor did they included important variables, such as the parent's income or parent's education, in the probit model. Without those variables, the results may be overestimated and education may not cause a .8% increase in the probability of becoming SE.

Despite the errors in this study, the results of this literature verify the need to use education, when analyzing the factors that influence self-employment decision. My study will also utilize the probit model but will focus on more recent data about parent's education, parent's income and control for region.

b. Identical Literature

The previous section provided general insight about important variables, primarily education, to use in the study. This section is more specific to my research and addresses numerous variables and ways to analyze why people choose to become SE. Although there are numerous studies on this topic, few devote significant attention to region and how it influences someone's decision. Fortunately, Eliasson and Westlund's (2013) thoroughly addresses the role that region (urban and rural) plays in the decision making. Eliasson et al. (2013) emphasizes the regional differences in self-employment by noting that urban areas may be better suited for self-employment, because of the availability of physical and financial capital, and the higher quantity of growing industries. Generally, cities also generate more businesses due to the high population density, which allows for higher demands for products and services. Nonetheless, the data shows that about twice as many people (10.2%) in rural areas were SE compared to those in urban areas.

The study also analyzes other factors in rural and urban areas that may influence someone's decision to become SE. Those factors are education, self-employment experience, labor market experience, plant characteristics, financial resources, family links, demography and regional attributes (north, south, neighborhood population etc.). In terms of education and experience, the study finds that both regions increase the probability of self-employment in similar ways, but that the effect is slightly stronger for urban regions. In fact, for most of these factors, the results show that the coefficients are similar. In other words, both region (rural and urban) affects the factors that influences the decision to become SE in similar ways, regardless of the region. In addition, the study examines the impact of parent's self-employment status on the likely hood of becoming SE. It demonstrates that when parents are SE, the likelihood of their children becoming SE increases. This has been the general consensus in all of the literatures that analyze the parent's impact on the decision of their children to become SE, and will be discussed more in the upcoming literatures.

Caliendo et al. (2014) conducted a unique study that provides an alternative approach to analyzing SE decision-making. This particular study is worth mentioning, not because I will incorporate personality data into my regression, but because it empathized the importance of personality traits when conducting this study. By using the Big Five (Five Factors) model as the foundation of the study, Caliendo (2014) aims to determine how peoples personality traits influences their entry and exit from self-employment. The five dimensions of personality that Caliendo et al., (2014) focuses on are extraversion, emotional stability, openness to experience, conscientiousness, and agreeableness. In addition to focusing on the five dimensions, the study also examines characteristics such as internal and external locus of control, risk tolerance, trust, patience, and impulsivity.

There are three hypothesis that are important to know to fully understand the result of the study. The first hypothesis states that the probability of entry into self-employment will be greater when individuals score higher in the extraversion, emotional stability, openness for experience, risk tolerance, internal locus of control, trust, impulsivity and impatience. It also states that entry will be greater when an individual scores lower in external locus of control. The second hypothesis states that the probability of exit from self-employment will be lower when an individual scores higher in extraversion, emotional stability, and conscientiousness. They also finds that lower (higher) scores in external (internal) locus of control will generate a lower probability of exit. The chances of them exiting will also be lower when an individual score lower in agreeableness and have a medium score of risk tolerance. The third hypothesis is that the probability to being SE will be higher when someone scores higher in openness for experience, extraversion, emotional stability, and conscientiousness. It will also be lower when that person scores lower in agreeableness, external locus of control, but will be higher when they score higher in internal locus of control and risk tolerance.

The results, which are estimated using a logit model, shows that the 5 dimensions of personality can explain why someone enters into self-employment, but hardly explains why they exit. In fact, most of the hypotheses are proven to be correct when considering entry into self-employment. Specifically, the results shows that risk tolerance, locus of control, and trust have significant impact on deciding to enter into self-employment. Unfortunately, no conclusion on the entry decision could be made on impatience and impulsivity.

In terms of exit, the higher an individual scores in agreeableness, the more likely they are to exit form self-employment. This can also be interpreted as that having a low level of agreeableness will positively influence the decision to remain SE. Caliendo (2014) also finds that

extraversion, conscientiousness, and emotional stability do not have an influence on the decision to stay SE, but that risk tolerance has a strong partial effect on exit from self-employment.

The findings confirms that personality plays a large role in someone's decision to become SE and that it should be controlled for when attempting to measure the effects of parent's education and income. It also briefly mentioned education and found that both the education of the father and the son contributes to self-employment, but that the effect of father's education is much larger.

Taylor (1996) considers other factors when conducting his study on why people choose self-employment as a career path. He believes that three reasons determine why someone makes that choice, which are earnings, independence, and unemployment. When conducting his study, Taylor (1996) uses a simple sample selection model. For the model to work, he assumes that an individual only has two choices to maximize utility, which is to become a wage worker or to become SE. He also uses a reduced form probit model, which encompasses the utility function, to determine how those three variables influence their decision.

The result, from the probit model, shows that independence and freedom of self-employment are main reasons for becoming SE, as well as the initiative and the type of work that they do (mainly manual work). The results imply that individual's preference and attitude are important factors to consider when trying to understand why someone becomes SE. Taylor (1996) also discovers that there is a positive correlation between family support and self-employment, because the results shows that the number of children has a positive effect on self-employment. Other factors that influence the decision are, marital status, housing equity, wealth, access to capital, and industry. In addition, the study finds that the probability of being SE increases as expected earnings of being SE increases. Since income represents utility, as

mentioned in the literature, this would also imply that people become SE to maximize their happiness.

Although Taylor (1996) proposes other important factors that are relevant to my study the findings do contradict my assumptions, that education plays an important role in the decision. This is because, my assumptions are based on the previous findings of Lazera et al. (1984) and Kawaguchi. They discovered that those who are SE tend to be well educated primarily because of the fact that they usually have high initial human capital. Since education is one of the most influential variables in human capital, it should have a strong impact on an individual's decision. Lazear et al. (1984) also mentioned that educated individuals have a higher propensity to be self-employed, which further implies that education may have a strong influence.

Dunn et al. (2000) also analyzed the factors that had an influence on the decision to become SE. They too discovered that parent's self-employment status has a significant role in influencing their children's decision. Two hypotheses are proposed to explain the parental influence. The first states that the capital market acts as a barrier to entry and limits the ability of entrepreneurs to finance their business. Since successful entrepreneurs already have wealth to spare, the parents can minimize that barrier to entry by providing funding (financial capital). The second hypothesis states that SE parents can pass along human capital, work experience or a positive reputation, thus increasing their children's chances of becoming successfully SE.

The results, which were derived by using a logit model, shows that parents' (primarily the father's) self-employment status influences their son's decision to become SE, especially if that parent is successfully SE. When their father was not SE, only 22% of the sons became SE. The study also reports that when neither parents were SE one of the two brothers were SE at least

12% of the time, but when both parents were SE one of the two brothers were SE at least 28.2% of the time (Dunn et al., 2000).

Since financial capital is a major reason to become SE, one would expect the impact to be large. However, Dunn et al. (2000) finds that the effect of financial capital (assets) for both parents and their children is rather small. In fact, a $10,000 increase in a parents assets increases the likelihood of their sons choosing self-employment by .0009. Also an increase in the son's own assets by $10,000, increases the probability of self-employment 0.0015. Although the results are small in both cases, it implies that an individual's own financial capital will influence their decision to become SE, more than the financial capital of their parents.

All of the previous literatures either indirectly or directly referenced the important variables (factors) that should be analyzed when attempting to discover what influences someone's choice to pursue self-employment. Those variables are the parents and the head's education, and the income of the parents. However, the previous researches did not dedicate significant attention to the influence of parent's education and parent's income, and also uses data before 2012. My research will, however, focus on the education of both the individuals and their parents, and also use data that is more recent (2012). Caliendo et al. (2014) used data from 2009, Taylor (1996) used data from 1991, and Dunn, T., & Holtz-Eakin, D. (2000) used data 1966 to 1982. The only relevant research that used somewhat current data was the one conducted by Eliasson et al. (2013), but it goes up to 2006. It will also critically analyze the sample data to determine if PSID allows for a concrete research on the topic. My research will also uses the liquidity constraint theory (Evans & Jovanovic, 1989), as the foundation. The theory determines that those who have access to enough assets (wealth, capital) are more likely to become entrepreneurs. Both education and income impacts someone's access to capital. For instance,

education influences the amount of financial capital an individual can or is able to attain. Income, on the other hand, is a direct form of financial capital, and directly represents someone's access to financial assets.

3 Data & Model

a. Empirical data

As previously mentioned, the database that is used to conduct this study is PSID. It is a fairly, well know database that has been cited by 3,000 peer reviewed publications, and it is also one of the longest running longitudinal household survey in the world. It originally gathered information on specific families in the U.S, and still continues to gather data on the off-springs of those families. The majority of the variables, which are extracted from this database, relate to the head of the household and their parents. It is important to note that the survey was originally conducted on low income families in 1968, which may mean that the data, and results, of this study is more representative of lower income individuals. Despite this possible bias, the database is still useful, because it provides access to extremely detailed information on individuals that is not possible with other databases. The relevant data that were extracted for this study were, the head of the household's income, heads education, parent's income, parent's social status, parent's education, and the parent's industry. Other information, such as race, gender, sex, and mental health status were include in the sample for the purpose of conducting numerous regressions based on demographics.

b. Descriptive Statistics of head of household

One of the initial goals of the study was to perform multiple regressions based on the race, and gender of the head of the household. This study would then discover if the coefficients

of the variables differ, depending on the race of the head, and by how much they differ. However, the sample is not large enough and is biased towards one race. In addition, it does not have sufficient data to analyze the influence of each factors based on race, and the results will be more representative of the white population than any other race (see Table 1). In fact, 3,552 or 69.27% of the head of the household are white. Considering that the total sample size is 5584, this leaves a limited amount of observations that are of the other races. I also hoped to include information relating to the mental health status of the head of the household, and managed to extract data on whether the head experienced memory loss, learning disorder, or emotional/nervous/psychiatric problems. This desire to address the mental health of the head can be credited to Caliendo et al. (2014), who found that someone's personality plays a large role in their decision to become SE. However, information on the attributes of an individual's personality could not be found (in PSID) for the year of 2012, only information on the mental health status. Since the lack of data did not allow for a study that encompasses personality attributes, mental health status would serve as a viable control variable for the study, especially because individuals with stronger mental health will likely perform better than those with mental problems. An analysis of the head of the household with mental problems showed that out of the 5,585 heads, 114 reported having memory loss, 200 reported having a learning disability, and 548 reported having some type of emotional, nervous or psychiatric problem. This only totals to 862, and very few of those 862 individuals will be included in the regression because only a small portion of them are SE. Thus, the model will not control for it, and will instead focus on more relevant control variables, such as region and industry, which may significantly impact the result. Furthermore, there is no way to determine the magnitude of these mental problem. PSID

doesn't allow us to determine if it is minor, if it is relevant or if it occurred many years ago when the individual was a child.

A closer analysis of the heads education and income from business, reveals important information about the necessary variables and the composition of the sample that is being used (see Table 2). The total sample size for the head of the household is 5,584. Out of the 5,584 head, only 604 are SE, and their educational attainment does not seem to differ whether they are SE or not. In fact, the mean years of education for the head of the household who were regularly employed is 13.6318, while the mean years for those who were SE is 13.4106. However, there is a larger difference in income for the head, based on if they are SE only, or self-employed and work for someone else. For instance, the average total yearly income from regular employment, for those who are SE and also work for someone else is $45691.15. Yet the average yearly income from business, for those who are SE is $5644.51, even though they make up 578 of the 604 SE heads. That is an incredibly low number, and it is difficult to believe that they actually earning that amount each year. There are a few potential reasons as to why the income is this low, most of which are not related to their actual income from business. The first reason is, because the income are from unincorporated businesses. It does not include income from those who were SE, but then became rich enough to expand their business into a corporation. Since corporations earn significantly more than an unincorporated business those earnings are not factored into the calculation of the average yearly income. A second explanation for the low income from business has to do with the way that PSID records values for the income from business, because 95.90% of the head reported income as $0. Regardless of what the 0 actually represents, the $5644.51 yearly income could imply that SE workers generally earn less than the regularly employed or it could imply that this particular sample of SE individuals are less

successful than the regularly employed. This is, of course, if one measures success in terms of earnings. It could also mean that education may not be relevant to an entrepreneur's success, especially considering that they have similar levels of education as the wage earners, but are still earning far less. If this is true, then it would as imply that neither earnings nor education are the primary reason for deciding to become SE.

c. Descriptive Statistics of Parents

A greater understanding of the sample can also be achieved by analyzing the average income and years of education of the parents. Unexpectedly, the mean years of education for the father and mother can't be interpreted the same way that it is interpreted for the head of the household. This is because of the way it is coded in PSID. For instance, a value of 4 means that the parents completed high school, while a value of 8 means that they attained a masters or professional degree. So if, one were to take the average years of education for the father and mother, they would mistakenly assume that the average educational achievement of the both parents are lower than it actually is. For instance, the mean would be 4.072656 for the father and 4.178203 for the mother. A more appropriate way to interpret the data is to analyze the actual number of parents that achieved a specific level of education (see Table 3). In terms of the father's education, 2088 of them completed high school. 1279 of the fathers have a college degree, but only 683 of them achieved a bachelor's degree, and 402achieved an advanced degree. Also, the largest group of fathers that are SE are those who have not attained a high school degree, the second largest are those who have only completed high school and the third largest are those who attained a bachelor's degree.

The sample for mother is essentially the same as it is for the fathers. 2192 of the mothers have completed high school, 699 of them have attained a bachelor degree, and 321 have attained

higher than a bachelor's degree (advanced degree). Furthermore, the mothers that completed high school are the largest group that are SE, those who only attended middle school was the second largest. Also, the number of SE mothers who attended high school, but dropped out, is similar to those SE mothers who achieved a bachelor's degree. What does this mean for the study? It means that we will potentially see a greater effect on self-employment from parents who have a high school degree and even those with less educational attainment. But if that assumption is true, then it would likely be because the mothers and fathers, who have attained a high school degree, are the largest portion of the sample. In fact, approximately 33.06% of the fathers in this sample have attained a high school degree. Only those who attained a bachelor's degree comes close to that number, but they are still only 12.27% of the total sample for fathers. Likewise, 34.80% of the mothers have attained a high school degree, while the second largest group are those who achieved some college level degree, but they are still only 13.80% of the total sample.

Asides from the parent's education, parent's income are also lower than anticipated. Yet, it is not as surprising, considering that there are a large number of parents who have attained less than, or equal to, a high school degree. The average income for the parents is $13,183.56. Note, that this income is from 1987, so if it is converted into today's value it would be roughly $27,817.31. Still, in 1987, the real median income was around $52000, according to the FRED database. The low levels of income occurs for the same reason that they are low for the head of the household. Out of the 5,585 parents, 2,069 (61.80%) of them reported income as $0. The 0 could mean that the parents actually received 0 income, that the father or mother are deceased, that they did not share housing or that they did not share the same assets. With this is mind, the summary statistics confirms the previous assumption that this sample is largely representative of

the lower income population. In addition, the summary of the data implies that the sample is composed of a large amount of head of the household, and parents, with low educational level.

Another variable that is worth analyzing is the parent's social status, especially because it is highly correlated with the income, assets or wealth of the parents (see Table 4). It may also verify if the sample is actually biased towards the lower income or higher income parents. A detailed analysis of the parents social status reveals that 1610 (28.83%) of the parents were poor, 2382 (42.65%) of them were considered to have average income, and 1525 (27.31%) of them were considered to be pretty well-off. When added together, the statistics reveals that 69.96% of the parents in this sample should have average or above average income. Furthermore, only 28.83% of the parents should be poor. Yet, the previous analysis of parent's income imply that the average parents should have an average total (yearly) income of around $13,183.56. Even if one were to exclude the parents who reported income as 0 the new mean ($34,510.2) would still be less than the median household income. The contradiction between the averages of parent's income and social status may have two implication for the composition of the sample. One implication is that, parent's social status accurately represents the sample and the average income are underestimated. The other implication is that, parent's income accurately represents the sample and the mean for the parent's social status are over estimated. The first implication seems to be the most plausible, because of the previously mentioned problem with parent's income being reported as 0. However, social status is not a full proof representation of the sample, because if individuals have to choose between being poor, average or well off, the actual numerical values of their income will not be properly captured. Also, reporting your social status is more subjective than reporting your actual income, because not everyone agrees on what it means to be average or poor. Those who are actually poor may actually report their social status

as average. Likewise, those whose actually have average or upper middle class income level, may misinterpret their status as pretty well off.

Additional conclusions about the entire sample can be drawn from table 5. The summary statistics of the variable SelfEmployedc reveals that 7.39% of the sample are SE. A summary of the variable edu, reveals that the average education for the entire sample is 13.61 years, which is less than the average education for the SE heads. It also reveals that 18.67% of the population are pretty well-off and 29.16% have average income. Table 5 also reveals that 31.85%, 15.66%, and 4.92% of the fathers attended high school, college and graduate schools, respectively. Similarly, 33.17%, 18%, and 3.94% of the mothers attended high school, college and graduate school, respectively.

d. Hypothesis & Model

Based on the analysis of the literatures it is no surprise that education and income plays a key role in this study. Thus, two hypothesis, relating to education and parents income, are proposed. The first hypothesis is that, the head's education level and mother's educational level will have a positive, and significant impact on the head's decision to become SE, but the father's education will be more significant than the mother's. The second hypothesis is that, parent's income and social status will also have a positive and significant impact on the head's decision to become SE.

This research employs the probit model to test both hypotheses, via two regressions (Regression1 and Regression2).The probit model is preferred over the OLS model, because the dependent variables are categorical and the desired results are binary (between 0 and 1). Thus, the probit model will report the results as coefficients between 1 and 0, but the OLS model may report the coefficients beyond those range. The actual equation for the probit model, for

Regression1 and Regression2, are written below. Both regressions uses the exact same key variables, but Regression1 does not include the control variables that will be used in Regression2.The key variables are, self-employment (self-employedc), the head's education (edu), log of parent's income (lnprntIncome), and parent's social status (prntWlOff and prntAvrge). The other important variables are the set of education variables for the fathers (ftrHghSchool, ftrCollege, ftrAdvnc), and the set of education variables for the mothers (motHghSchool, motCollege, motAdvnc). The control variables, includes the set of industry variables for the fathers (ftrIndustry1…ftrIndustry244) and the set of industry variables for the mothers (motIndustry1…motIndustry212). The other control variables, for regions, are based on geographical location (Northeast, North Central, South, West and Alaska/Hawaii) and population size (LrgCentralMetro, LrgFringeMetro, MedCentralMetro, SmlCentralMetro, LUrbnNearMetro, LUrbnAwyMetro, SUrbnNearMetro, SUrbnAwyMetro, and Rural). Having a control variable for industry is necessary, because it is easier to pursue entrepreneurship in some industries and harder in others. For instance, the barriers to entry for manual laborers, carpenters and photographers, are lower than the barriers to entry for financial advisors or lawyers. It requires less financial, and human capital, to open a carpentry business than it does to open a law firm. Furthermore, the main industries for mothers and fathers differs. In fact, the top three industries for the fathers are manufacturing, agriculture, and transportation, with manufacturing being the largest industry, followed by agriculture then transportation (see table 7). The top three industries for the mothers are, health care & social assistance, educational services, and manufacturing (see table 6). There is also a need to control for region, because there are multiple regions, which may influence the results of the study.

$$Pr(Y=1|X)=\Phi(\beta_0+\beta_1X_1+\beta_2X_2+\beta_3X_3+\beta_4X_4+\varepsilon) \quad (1)$$

$$Pr(Y=1|X)=\Phi(\beta_0+\beta_1X_1+\beta_2X_2+\beta_3X_3+\beta_4X_4+\alpha_1X_1+\alpha_2X_2+\varepsilon) \quad (2)$$

The dependent variable (selfEmployedc) is represented as Y, and the heads education (edu) is represented by β_1X_1. The variables corresponding with the father's education (ftrHghSchool, ftrCollege, ftrAdvnc), are represented by β_2X_2. The variables that relates to the mothers education (motHghSchool, motCollege, motAdvnc), are represented by β_3X_3. Parent's income (lnprntIncome) and the variables for parent's social status (prntWlOff, prntAvrge) are represented by β_4X_4. The control variables Northeast, NorthCentral, South, West, Alaska/Hawaii, LrgCentralMetro, LrgFringeMetro, MedCentralMetro, SmlCentralMetro, LUrbnNearMetro, LUrbnAwyMetro, SUrbnNearMetro, SUrbnAwyMetro, and Rural are all represented by (α_1X_1). Finally, the set of control variables for the numerous mother's and father's industries are represented by α_2X_2. I purposefully excluded some of the dummy variables for region and industry, because of the standard practice of excluding 1 dummy variables in a regression. STATA automatically excluded numerous dummy variables for industry due to the perfect prediction error. Those variables, for region, represents foreign country.

All of the variables in the model, besides parent's income, are categorical, and needed to be remodeled into dummy variables. The only categorical variable that did not need to be recoded was the head's education, which was already coded in actual values from 1 to 17. SelfEmployedc, was constructed by merging two other SE dummy variables. One of which, is a dummy variable that represented the individuals who were only SE, and not employed by someone else (selfEmployeda). The other represented those who were self-employed, but also worked for someone else (selfEmployeda). Parent's income was also created by merging three separate income variables. The merger was necessary because PSID separated the variables based on biological parents and step parents. One variable was for the heads biological parents,

one was for the birth father & step mother, and the other was for the birth mother and step farther. The dummy variables, prntWlOff and prntAvrge, were created because parents' social status was originally coded in values of 1, 3 and 5. A value of 1 meant that they were poor, a value of 3 meant that they had average income, and a value of 5 meant that they were pretty well-off. Due to multicollinearity, there was no need to create a third dummy variable that corresponded with being poor, which explains why only two variables were used in the regression. The same also applies for industry and region, which were also divided into dummy variables.

Regression Results

The sample size was originally in the thousands, but after running the regression it decreased to 525. Much of the loss of the sample is because of the limited number of heads who are SE, and also because the variable lnPrntIncome, excluded the observations that had income recorded as $0. Since 4,046 or 88.90% of the parent's reported having $0 as their income, they were all excluded from the regression. Alternative variables that are related to financial assets, such as the parent's housing value, assets, and net worth were suggested as a solution to this problem. However, they had just as many 0's as lnPrntIncome, and since income was a more direct measurements of financial capital, it was selected instead of those variables.

Out of all of the key variables Regression1, only the coefficients for parent's income is significant and positive, which is lnPrntIncome (see Table 8). The coefficients for lnPrntIncome is .0526 and the corresponding p-value is .007. What this means is that an additional 1 percentage increase in the parent's income will increase the probability of becoming SE by 5.26%. The coefficients for fathers education (ftrHghSchool, ftrCollege, ftrAdvnc) were .0413, -.0131 and .1202, respectively. Unfortunately, all of those coefficients are insignificant due to

their high p-vaule. The same also applies to the variables relating to the mothers education (motHghSchool, motCollege, motAdvnc). Their coefficients were -.0291, -.02018, and -.0848, respectively, but due to the high p-values the results are insignificant. The results of Regression1 implies that both the father's and the mother's education does not influence the heads decision to become Se. The only factors that influences the decision is the parents combined income. Although the results do not support the first hypothesis, it does partially supports the second by proving that the influence of parent's income is positive and significant. Of course, these results are based on the model with no control for region and industry.

When the regression controls for region and industry the results are different. The coefficients for the variables relating to the fathers education (ftrCollege, ftrAdvnc) are, .0016 and .329, but are insignificant. Similarly, the coefficients for mother's education (motHghSchool, motCollege, motAdvnc) are, -.0314, -.0301 and -.0568, but are also insignificant. Similarly, the coefficients for parent's social status (prntWlOff and prntAvrge) are -.00948 and -.0988, and are also insignificant. The only variables that have significant results are, lnPrntIncome, and ftrHghSchool, because both coefficients are significant the 5% level. Their respective coefficients are .102 and .195. The coefficient for ftrHghSchool means that if the father completed high school then the head of the household will have a 10.2% probability of becoming SE. Similarly, the coefficients for parents income means that for ever additional percentage increase in parent's income, then the probability of becoming SE is 19.5%. The results do not support the first hypothesis, because the mother's educational achievement did not have an influence on the child's decision to become SE, only the fathers educational level. Also, whether the father attended college or had an advanced degree, had no impact on the decision. The second hypothesis is, however, partially correct. Even though the results for social status

were insignificant, parents income demonstrated a positive and significant impact on the individual's the likelihood of become SE.

It is believable that an additional percentage in parent's income will result in a 10.2% increase in the probability of becoming SE, especially if one believes the assumptions of the liquidity constraint theory. However, it is not as believable to think that having a father, who completed high school, will have a more positive and significant impact than the fathers who completed college or attained an advanced degree. This is true, especially if one assumes that more educated individuals have a greater probability of becoming SE, as implied by the liquidity constraint theory. Regardless of which educational level has a greater impact, the results showed that the father's educational achievement is significant and the mother's is not. A possible explanation for this result may be because men are usually the bread winner, and thus have a greater financial impact on the family, which may make them a greater source of influence for their child. Another explanation could be because of the fact that a majority of the head of the household, in this sample, are males, and according to Dunn et al. (2000) the fathers tend to have a greater influence over sons than mothers. The lack of the mothers influence could also be attributed to the difference in the earnings of the mothers and fathers. On average, women earn less than men, which would imply that, on average, mothers have less access to capital than fathers. If this assumptions holds true then it would make sense for the child to be most affected by the father, especially since they tend to have higher earnings than the mothers. Regardless of the reason, parent's education should, and does, play a significant role, especially if one assumes that having an educated role model can decrease the risk of self-employment. Educated individuals tend to have more income (financial capital) and, according to the liquidity constraint theory, those with more access to financial capital are more likely to become SE. Also, educated

parents may have better connections and resources at their disposal, which may make self-employment seem like a less difficult career path.

Aside from parent's education and income, region also significantly influences self-employment, but not in the way that one expects. In fact, all of the coefficients for the different urban and rural regions are significantly negative (see table 6), which means that the different types of rural and urban region do not have significantly different impact on self-employment. This is contradicts Eliasson et al. (2013), beliefs that urban and rural regions have different impact on factors influencing self-employment. Yet it supports his findings that different regions have similar influences on factors that influences self-employment. Despite the fact that each of the control variables for regions are negative, and significant at the 1% level, the coefficients do show that some regions have greater influence than others. According to the regression results, the variables LrgFringeMetro and MedCentralMetro have the most influence, because they have the largest coefficients out of all of the other region variables. This could potentially imply that being in a large fringe metropolitan area with more than 1 million people or a metropolitan area with a population that is between 250 and 1 million people, will have the most influence on self-employment. However, such an analysis is too specific and may not be true in all cases. A more appropriate analysis may be that larger metropolitan areas will have a greater influence on the probability of becoming SE rather than smaller Urban (or rural) areas.

a. Implications for PSID

Based on the results and data, we can conclude that it is possible to conduct a valid study using PSID. This is because, it offers detailed information on demographic, income, education and such. It even provides information on individual's attitude and personality, but unfortunately they were only conducted in the earlier years. Since this study only focuses on relatively recent

data, it could not include those information's to actually examine how personality affects an individual's career choices.

Despite the positives of the database, there are some limitations to PSID, which makes it difficult to complete a thorough research on this topic. One of those limitations is that it is difficult to gather information on the income of the father and mother. The other negative aspects of using PSID is that the sample size for the SE individuals is very limited. This makes it difficult to conduct a large scale study on self-employment, based on someone's race/gender. It also prevented this research from being able to analyze how the results differ for those who are only SE, and those who are SE, but also work for a company. Furthermore, the data is more representative of low income families, which may produces a biased income levels.

b. Policy Implications

Considering that SE individuals have significantly contributed to the economic development, it would be beneficial for the economy if these individuals are protected and have access to sufficient resources to become successful. Those resources can include mentors or specific scholarships for those who desire to become SE, but don't have either parents in their life. A scholarship is necessary, because the study finds that parents income play a significant role. If someone only has one parent in their life then the income will be lower than it may have been without the other parent, thus lowering the probability of becoming SE. Offering government aid/scholarships can serve as an alternative to the loss of potential income that occurs with only one parent. Aside from the scholarship there can also be programs that provide mentors to the individuals. Mentors are important because of the fact that parent's education, specifically the father's, increases the probability of SE. They will serve as an alternative or

additional support, which will aid in the individuals wanting to become SE. Taylor (1996) proves this by discovering that family support and self-employment are positively related.

The sample composition and the results of the study implies that first generation college students are also likely to become SE. They are classified as students whose parents have not attained a college (bachelor) degree, and are usually the first in their family to graduate from college. There should be policies that are catered to these individuals, because they typically have less access to the same resources and connections as the other students. Resources such as financial capital (grants), will be beneficial because it will increase individual's desire to become SE, according to the results of this study.

Conclusion

In sum, this research attempts to analyze the factors that influences an individual's decision to become SE. Previous literatures have noted that parents can have a significant influence on their children's decision, as well as education and financial capital. However, the literatures did not attribute significant attention to the role that parent's education plays. Fortunately, this study recognizes parent's education and their financial assets as key variables. It also controls for region, industries and utilizes a more recent sample than the other literatures. It employs the liquidity constraint theory as the foundation of the study and uses the probit model to estimate the results of the key variables. The research doesn't only focus on the key factors, it also investigates the variables and sample in the PSID database. The investigation of the database is solely for determining if PSID allows for a sound and unbiased study, on how those factors influences the individual's decision to pursue self-employment.

Two regressions (Regression1 and Regression2), were performed to test the impact of the variables. Regression1 only included the key variables, which are education of the head, the

parent's education, the parent's income and the parent's social status. Regression2, however, included the control variables for industry and region. Its results shows that both parent's income and the father's education, have significant and positive impact on an individual's decision to become SE. The impact of education is proven by the significantly positive coefficients for the variable ftrHghSchool. Nothing could be said about the heads own educational achievement, the mother's educational achievement nor the parent's social status, because the coefficients for those variables were insignificant, in both regressions.

In regards to the PSID database, the research finds that a significant amount of values for parent's income are reported as 0. Also the average income of the parents and the head are below the average household income, which implies that the results of the sample may be largely representative of the lower income families. It is entirely possible that the coefficients may have varied based on race, but the composition made it difficult to test this assumption. In fact, an analysis of the demographic of the sample reveals that the majority of the individuals, are white. Thus, the results of this limited sample size may not be consistent with a similar results done with a larger sample.

Future research should be conducted with a larger sample size to better test how parents education and income can influence the likely hood of their child become SE. A larger sample would also allow other studies to test how the coefficients of the key variables changes, depending on the different subgroups of self-employment, for both the head of the household and their parents. The subgroups refers to those who are only SE, and those who are SE, but also works for someone else. Furthermore, a larger sample size will allow for future studies to analyze the results based on race, gender or specific industries.

Future research should also include variables on past work experience to control for those individuals who had prior work experience. It may be the case that prior work experience may have an impact, because it may either significantly increase or decrease the likelihood of someone wanting to become SE. Other studies, should also attempt to incorporate attributes of personality to truly measure the role that parent's education and income plays in that decision. This is backed by the research of Caliendo et al., (2014), which finds that personality have a significant influence on that decision. Some personality traits that should be analyzed are, an individual's risk tolerance and independence (autonomy), especially because self-employment requires risk taking and the ability to be independent.

Table 1: Demographic and Mental Health Status of Head of Household

	Total Sample	Memory loss	Learning Disability	Nervous emotional Psychiatric	Total With Mental Problems
Head of Household	**5584**	**114**	**200**	**548**	**862**
White Head of Household	3551	76	159	417	**652**
Black Head of Household	1,716	31	34	111	**176**
Native America	33	1	1	3	**5**
Asian	79	2	1	5	**8**
Native Hawaiian or Pacific Islander	6	0	0	0	**0**
Other	184	4	4	12	**20**

Table 2: Head of Household Education and Income

	Regularly Employed	Self-employed and Work for Someone Else	Self-Employed Only
Head of Household	3998	26	578
Mean Education	13.63273	14.38462	13.36678
Standard Deviation	2.552414	2.450746	2.639601
Mean Yearly Income Wage/Salary	49002.15	47532.69	--
Standard Deviation of mean wage/salary income	120605.3	45691.15	--
Mean Yearly Income from business	--	877	5644.514
Standard Deviation of mean income from business	--	2434.69	24372.95

Table 3: Mother and Father Education

	Father	%	Mother	%
0	582	10%	591	11%
0-5 grades	162	3%	68	1%
6-8 grades	558	10%	424	8%
9-11 grades	513	9%	518	9%
12 grades (completed high school)	1832	33%	1950	35%
12 grades plus non-academic training	256	5%	242	4%
Some college No Bachelor	596	11%	767	14%
College BA	683	12%	703	13%
advanced or professional degree	402	7%	322	6%
Total	5584	100%	5584	100%

Table 4: Parents Social Status

	PSID Value	Parents Social Status	Percent
Poor	1	1619	28.83
Average	3	2382	42.65
Pretty well off	5	1524	27.31

Table 5: Summary Statistics of Variables

Variable	Obs	Mean	Std. Dev.	Min	Max
selfEmployedc	8,167	0.0740	0.2617	0	1
edu	5,584	13.6087	2.562492	0	17
parentsIncme	3,348	13183.5600	45003.8100	0	1200000
lnparentsIncome	1,279	9.8861	1.0257	5.560682	13.99783
prntWlOff	8,167	0.1866	0.3896	0	1
prntAvrge	8,167	0.2917	0.4546	0	1
ftrHghSchool	8,167	0.3185	0.4659	0	1
ftrCollege	8,167	0.1566	0.3635	0	1
ftrAdvnc	8,167	0.0492	0.2163	0	1
motHghSchool	8,167	0.3317	0.4709	0	1
motCollege	8,167	0.1800	0.3842	0	1
motAdvnc	8,167	0.0394	0.1946	0	1
Northeast	8,167	0.0926	0.2898	0	1
NorthCentral	8,167	0.1707	0.3763	0	1
South	8,167	0.2848047	0.451349	0	1
West	8,167	0.129056	0.3352824	0	1
AlaskaHawaii	8,167	0.0019591	0.0442211	0	1
LrgCentralMetro	5,584	0.2713109	0.444676	0	1
LrgFringeMetro	5,584	0.1455946	0.3527309	0	1
MedCentralMetro	5,584	0.2575215	0.4373082	0	1
SmlCentralMetro	5,584	0.0784384	0.2688843	0	1
LUrbnNearMetro	5,584	0.0354585	0.1849521	0	1
LUrbnAwyMetro	5,584	0.0311605	0.1737668	0	1
SUrbnNearMetro	5,584	0.0644699	0.2456102	0	1
SUrbnAwyMetro	5,584	0.0825573	0.2752366	0	1
Rural	5,584	0.0266834	0.1611708	0	1

Table 6: Top 10 most worked in Industry for the Mothers

Industry	Amount
Healthcare and social assistance	840
Educational Services	503
Manufacturing	462
Retail Trade	222
Accomidation and Food Services	246
Other services	226
Finance and Insurance	178
Public Administration and active Duty	166
Professional, Scientific, and Technical Services	92
Transportation and Warehousing	94

Table 7: Top 10 most worked in Industry for the fathers

Industry	Amount
Maufacturing	1107
Agriculture, forestry, fishing or hunting	612
Transportation and warehousing	505
Public Administration and Active Duty Military	487
Retail Trade	335
Other Services	300
Educational Services	206
Wholesale Trade	189
Professional, Scientific, and Technical Services	160
Health Care and Social Assistance	156

Table 8: Regression1 and Regression2 Results

	Regression1 selfEmployedc	Regression2 selfEmployedc
edu	-0.000657	0.0154
	(0.0075)	(0.0143)
lnparentsIncome	**0.0526*** **	**0.102*** **
	(0.0194)	(0.0337)
prntWlOff	-0.0185	-0.0948
	(0.0490)	(0.0669)
prntAvrge	-0.00808	-0.0988
	(0.0361)	(0.0643)
ftrHghSchool	0.0413	**0.195** **
	(0.0432)	(0.0836)
ftrCollege	-0.0131	-0.00156
	(0.0543)	(0.1040)
ftrAdvnc	0.12	0.329
	(0.1030)	(0.2820)
motHghSchool	-0.0291	-0.0314
	(0.0483)	(0.0870)
motCollege	-0.0202	-0.0301
	(0.0553)	(0.1070)
motAdvnc	-0.0848	-0.0568
	(0.0580)	(0.1530)
LrgCentralMetro		-0.244***
		(0.0890)
LrgFringeMetro		-0.310***
		(0.1060)
MedCentralMetro		-0.295**
		(0.1270)
SmlCentralMetro		-0.181***
		(0.0401)
LUrbnNearMetro		-0.163***
		(0.0596)
LUrbnAwyMetro		-0.184***
		(0.0310)
SUrbnNearMetro		-0.202***
		(0.0448)
SUrbnAwyMetro		-0.205**
		(0.0989)
Rural		-0.188***
		(0.0380)
Observations	525	260

The coefficients are reported in terms of the marginal effects of each variable
Standard errors in parentheses
***/**/* indicates significances at 1/5/10 % levels, respectively

References

Caliendo, M., Fossen, F., & Kritikos, A. S. (2014). Personality Characteristics and the Decisions to Become and Stay Self-Employed. *Small Business Economics*, 42(4), 787-814.

Dunn, T., & Holtz-Eakin, D. (2000). Financial Capital, Human Capital, and the Transition to Self-Employment: Evidence from Intergenerational Links. *Journal of Labor Economics*, 18(2), 282-305.

Eliasson, K., & Westlund, H. (2013). Attributes Influencing Self-Employment Propensity in Urban and Rural Sweden. *Annals of Regional Science*, 50(2), 479-514.

Evans, D. S., & Jovanovic, B. (1989). An Estimated Model of Entrepreneurial Choice under Liquidity Constraints. *Journal 0f Political Economy*, *97*(4), 808-827.

Garcia-Mainar, I., & Montuenga-Gomez, V. M. (2005). Education Returns of Wage Earners and Self-Employed Workers: Portugal vs. Spain. *Economics of Education Review*, 24(2), 161-170.

Kawaguchi, D. (2003). Human Capital Accumulation of Salaried and Self-Employed Workers. *LabourEconomics*, 10(1), 55-71.

Lazear, E. P., & Moore, R. L. (1984). Incentives, Productivity, and Labor Contracts. *Quarterly Journal of Economics*, 99(2), 275-296.

Robinson, P. B., & Sexton, E. A. (1994). The Effect of Education and Experience on Self-employment Success. *Journal of Business Venturing*, (2), 141-156.

Taylor, M. P. (1996). Earnings, Independence or Unemployment: Why Become Self-Employed? *Oxford Bulletin of Economics and Statistics*, 58(2), 253-266.